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EXAMINER
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KENDALL, CHUCK O

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/783,250

Applicant(s)

PAL ET AL.

Examiner

Chuck Kendall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This action is in response to Appeal Brief filed 08/18/04.
2. Claims 1 – 45 have been examined.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 6, 9, 15, 16, 18 – 23, 25, 31 – 36, & 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998.

Regarding claim 1, Darty discloses a method of testing a program having statements, said method comprising the steps of:

- a) dividing said program into a plurality of groups such that every statement in the program belongs to at least one of the groups, (Figure 3a, Darty, S102) and
- b) determining the ones of the program that are executed when said program is executed while testing said program (Figure 3c, S137);
- c) indicating unexecuted groups, ones of the groups based on the ones of the groups that were determined in step b) to have been executed (14:36 – 40, see runtime (i.e. execution time) pass/fail matrix); and
- d) enabling said tester to execute said unexecuted groups such that said tester can ensure that all statements in said program are executed at least once (Figure 3d, S150, S153, S155, S 160 and C' which flows back to B, on Figure 3c, Examiner interprets the unexecuted groups to be S148 in Figure 3d). Darty, doesn't explicitly disclose wherein each of said groups contains a respective sequence of ones of the

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statements such that all the statements of such a group are executed if at least one statement of said group is executed, wherein such a group is deemed to be executed if at least one of the statements of the group is executed when the program is executed. Darty does show the blocks of code being tested for passing and failing and upon the determination, if failed making the necessary corrections and re-executing see Figure 3d and 3c. The ATAC: Overview discloses on page 2, in section 3.3.1 that, "Block coverage ensures that all the basic blocks are executed at least once". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and The ATAC: Overview because, "a test case that executes all program statements tends to test a program more thoroughly than a test set that invokes all functions", ATAC: Overview section 3.2, 3<sup>rd</sup> paragraph.

Regarding claim 2, the method of claim 1, further comprising including an extra statement in each of said groups, wherein execution of such an extra statement enables said determining in step b) to identify an executed one of the groups corresponding to said extra statement (Darty, see Figure 3c, S135 for Run TimePass/Fail, Examiner interprets identifying an executed ones to be blocks that passed).

Regarding claim 3, the method of claim 2, wherein said extra statements contains respective group identifiers, wherein said determining in step b) further comprises examining such a group identifier to determine a specific one of the groups which has been executed (Darty, see Figure 3b, S122 shows each test point being associated to blocks, Examiner interprets this as a means of identifying and correlating blocks).

Regarding claim 4, the method of claim 2, wherein said program is contained in a plurality of programs which in turn are contained in a class of an object oriented environment (Darty, 21: 25 – 27, see Java).

Regarding claim 5, the method of claim 4, further comprising the steps of: grouping a sequence of the groups into a block; and

determining that said block has been executed only if all of the groups of the block are executed (The ATAC: Overview discloses on page 2, in section 3.3.1 that, "Block coverage ensures that all the basic blocks are executed at least once").

Regarding claim 6, the method of claim 5, Darty discloses all the claimed limitations as applied in claim 5. Darty doesn't explicitly disclose wherein said grouping comprises: determining a language structure present in said plurality of programs as well as grouping a subset of groups present in said language structure into a block such that the statements in said language structure are presented as a block to said tester.

Darty does disclose grouping lines of code into functional blocks S102. ATAC: Overview discloses language structures within several programs, see Block 1, Block 2, and Block 3, on page 3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC because, "...achieving completely adequate block coverage ensures that the entire program is at least executed".

Regarding claim 9, the method of claim 4, wherein said enabling comprises: enabling said tester to examine the statements associated with said unexecuted blocks such that said tester can determine arguments which would cause an unexecuted block to be executed; enabling said tester to enter said determined arguments to cause said unexecuted block to be executed (Darty, Figure 10, see process failure data and determine corrective action).

Regarding claim 15, the method of claim 4, wherein said dividing, determining, indicating and enabling are performed in a single computer system (Darty, Figure 3a, S102).

Regarding claim 16, the method of claim 4, wherein said object is generated in Java programming language (Darty, 21: 25 – 27, see Java).

Regarding claim 18, (computer program product) see claim 1 for reasoning.

Regarding claim 19, (computer program product) see claim 2 for reasoning.

Regarding claim 20, (computer program product) see claim 3 for reasoning.

Regarding claim 21, (computer program product) see claim 4 for reasoning.

Regarding claim 22, (computer program product) see claim 5 for reasoning.

Regarding claim 23, (computer program product) see claim 6 for reasoning.

Regarding claim 25, computer program product of claim 21, wherein said enabling means comprises:

second enabling means for enabling said tester to examine the statements associated with said unexecuted blocks such that said tester can determine arguments which would cause an unexecuted block to be executed (Darty, Figure 10, see diagnostics).

third enabling means for enabling said tester to enter said determined arguments to cause said unexecuted block to be executed (Darty, see Figure 3c, S135 for Run TimePass/Fail, Examiner interprets identifying an executed ones to be blocks that passed).

Regarding claim 31, (a system) see claim 1 for reasoning.

Regarding claim 32, (a system) see claim 2 for reasoning.

Regarding claim 33, (a system) see claim 3 for reasoning.

Regarding claim 34, (a system) see claim 4 for reasoning.

Regarding claim 35, (a system) see claim 5 for reasoning.

Regarding claim 36, (a system) see claim 5 for reasoning.

Regarding claim 38, the system of claim 34, wherein said processor receives instructions from said input interface to display the statements associated with said unexecuted blocks, said processor causing the statements to be displayed on said display unit such that said tester can determine arguments which would cause an unexecuted block to be executed (Darty, see Figure 3c, S135 for Run TimePass/Fail, Examiner interprets identifying an executed ones to be blocks that passed).

5. Claims 10 – 12, 14, 17, 26 – 28, 30, 39, 40, 41, 43, & 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998 and further in view of Rodrigues USPN 6067639 A.

Regarding claim 10, Darty as modified by ATAC: Overview discloses all the claimed limitations as applied in claim 9 above. The combination of Darty and ATAC does not disclose wherein said argument comprises an instance of another object. Darty does disclose implementing using the Java language which does inherently have object instantiation Darty, 21: 25 – 27, see Java. Rodrigues in an analogous art

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discloses comprising instance of other objects see (Rodrigues FIG. 5, 502). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC with Rodrigues because, object instantiation is a general practice in Object oriented languages such as C++ and Java, (standard industry languages) which enable functions and other class members to implement class objects.

Regarding claim 11, the method of claim 10, further comprises: enabling said tester to instantiate said instance of said another object (Rodrigues, FIG.5, 502); enabling said tester to assign a name to said instance, wherein said tester can enter said name to provide said instance as an argument value (Rodrigues, 13:13 – 15).

Regarding claim 12, the method of claim 11, further comprising:  
receiving a string as an argument (Rodrigues, 13:13 – 15, see name); and  
determining that said string indicates that said instance is said argument value if said name matches said string (Rodrigues, 13:13 – 35).

Regarding claim 14, the method of claim 13, wherein said macro is designed to examine the data structures within an instance of an object or to set the values for the variables in the object (Rodrigues, FIG., 502).

Regarding claim 17, the method of claim 4, further comprising: enabling said tester to load said class; enabling said tester to instantiate an instance of said class (Rodrigues, FIG., 502); and enabling said tester to execute said program on said instance (Rodrigues, FIG., 504).

Regarding claim 26, (computer program product) see claim 11 for reasoning.

Regarding claim 27, (computer program product) see claim 12 for reasoning.

Regarding claim 28, (computer program product) see claim 14 for reasoning.

Regarding claim 30, (computer program product) see claim 17 for reasoning.

Regarding claim 39, the system of claim 38, wherein said argument comprises an instance of another object (Rodrigues, FIG.5, 502).

Regarding claim 40, (system) see reasoning in claim 11.

Regarding claim 41, (system) see reasoning in claim 12.

Regarding claim 43, (system) see reasoning in claim 14.

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Regarding claim 44, the system of claim 34, wherein said processor loads said class into said RAM in response to receiving an instruction to load said class, said processor further instantiating an instance of said class in response to receiving another instruction, said processor executing said program on said instance in response to receiving one more instruction (Rodrigues, 15: 37 – 40).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 8, 24, 37 & 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998 (hereinafter "ATAC ") as applied in claim 6, in view of Uchihira et al. USPN 5,860,009 (hereinafter Uchihira).

Regarding claim 7, Darty as modified by ATAC discloses all claimed limitations as applied in claim 6 above. The combination of Darty and ATAC doesn't explicitly disclose wherein said blocks are defined hierarchically according to the inclusive relationship of language structures in said plurality of programs. However, Uchihira does disclose this feature in a similar configuration (25:55 – 60). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC with Uchihira because, defining instructions hierarchically by different levels enables more efficient prioritization.



Regarding claim 8, Darty as modified by ATAC discloses all the claimed limitations as applied in claim 7. The combination of Darty and ATAC doesn't explicitly disclose wherein said language structure comprises one of program delimiters, control structure and loop structure. Darty does disclose grouping lines of code into functional blocks S102. ATAC: Overview discloses language structures within several programs, see Block 1, Block 2, and Block 3, Block 1 of which includes conditional expressions on page 3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC because, "...achieving completely adequate block coverage ensures that the entire program is at least executed".

Regarding claim 24, (computer program product) see claim 7 for reasoning.

Regarding claim 37, (system) see claim 7 for reasoning.

Regarding claim 45, the system of claim 31, wherein said input interface is connected to at least one of a mouse and a key-board (Darty, 4: 10 – 15, also see Uchihira, 12:11, note key-board and mouse devices are well known devices for use on computer system).

### ***Allowable Subject Matter***

8. Claims 13, 28 & 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not disclose or teach the following limitation:

"enabling said tester to execute said macro in the middle of testing said plurality of programs".

***Response to Arguments***

9. Regarding Applicant's arguments, see Appeal Brief, filed 08/18/2004, with respect to claims 1 – 45 have been fully considered and are persuasive. The previous Final rejection of 03/10/2004 has been withdrawn.

***Conclusion***

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-2723698. The examiner can normally be reached on 10:00 am - 6:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-2723695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK.



JOHN CHAVIS  
PATENT EXAMINER  
ART UNIT 2124